

WHAT IS CLAIMED IS:

1. A direct-conversion receiver for substantially removing DC offset signals in a mobile communication terminal, the receiver comprising:

converting means for downconverting a modulated signal received from an antenna;

detecting means for detecting a difference between two DC offset signal components;

and

adjusting means for substantially reducing the difference.

2. The receiver as claimed in claim 1, wherein the converting means comprises:

at least one mixer for mixing the signal provided from a low amplifier (LNA) with two I/Q components that are separated by 180° in phase;

at least one low pass filter for eliminating spurious signals generated in the mixers; and

at least one compensation amplifier for compensating the DC offset signal, wherein a first amplifier has a fixed gain and a second amplifier has a variable gain.

3. The receiver as claimed in claim 1, wherein said adjusting means comprises:

an amplifier for increasing the magnitude of the DC offset component;

an analog-to-digital converter (ADC) for transforming an analog DC offset signal into a digital signal;

a digital signal processor (DSP) for determining whether the DC offset is zero or not,

and for outputting a control voltage to an automatic gain controller to adjust the DC offset signal to zero; and

a digital-to-analog converter (DAC) for transforming an output of the DSP into an analog signal.

4. The receiver as claimed in claim 1, further comprising:

a switching means for connecting the converting means to a detecting means; and
at least one amplifier for amplifying signals provided from a subtracting means.

5. A method for substantially removing DC offset signals utilizing a direct-conversion receiver, the method comprising the steps of:

down-converting a modulated signal received from an antenna;
detecting a difference between the DC offset signal components from balanced mixers;
and
adjusting the difference between detected DC offset signal components to minimize the difference.

6. The method as claimed in claim 5, wherein the adjusting step includes the step of:
outputting a value to minimize the difference.

7. The method as claimed in claim 5, wherein the down-converting step includes the steps

of:

mixing a signal provided from a low noise amplifier with two I/Q components

generated in a local oscillator, respectively;

converting the mixed signal into a base band signal; and

amplifying the base band signal based upon a value generated by an adjustment means

of the direct conversion receiver.